REMARKS

This application has been reviewed in light of the Office Action dated March 13, 2003. Claims 1-75 are presented for examination. Claims 1-6, 8, 10-19, 21-32, 34-43, 45-56, 58-67, and 69-75 have been amended to define more clearly what Applicant regards as their invention. Claims 1, 14, 25, 38, 49, and 62 are in independent form. Favorable reconsideration is requested.

A Letter Transmitting Formal Drawing is submitted herewith. Applicant upon review of the drawings noticed that Figures 8A through 8D did not contain the reference designators as described in the specification. Accordingly, Figures 8A through 8D have been amended to include the appropriate reference designators.

The Office Action rejected claims 1-75 under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 5,479,603 (*Stone '603*).

As shown above, Applicant has amended independent claims 1, 14, 25, 38, 49, and 62 in terms that more clearly define what he regards as his invention. Applicant submits that these amended independent claims, together with the remaining claims dependent thereon, are patentably distinct from the cited prior art for at least the following reasons.

The aspect of the present invention set forth in claim 1 is a method of generating an image. The image is formed by rendering and compositing at least a plurality of graphical objects, each object having a predetermined outline. The method divides a space in which the outlines are defined into a plurality of regions, each region being defined by at least one region outline substantially following at least one of the predetermined outlines or parts thereof. In particular, at least one horizontal or vertical segment of one or more of the region

outlines is selected from corresponding horizontal or vertical segments of a virtual grid encompassing the space, depending on the predetermined outlines. The regions are manipulated to determine a plurality of further regions, at least one horizontal or vertical segment of one or more of the further regions being selected from corresponding horizontal or vertical segments of the virtual grid, where each further region has a corresponding compositing expression. The method classifies the further regions according to at least one attribute of any one or more of the graphical objects which substantially fall within the further regions. Each corresponding compositing expression is modified according to a classification of each further region to form an optimized compositing expression for each further region compared to the corresponding compositing expression. The corresponding compositing expressions are optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, maintaining the image to be generated. Finally, the method comprises a generation step, of generating the image by compositing the plurality of graphical objects using each of the optimized compositing expressions.

As previously submitted, the object of *Stone '603* is to provide a method for accessing <u>alternative views</u> of an information model data structure. In view of this object, *Stone '603* provides a method for operating in a processor-controlled machine to produce a composite view of an original, or first image by combining the functions of multiple viewing operations and using the model data structure from which the first image was produced (referred to as "FIMDS").

In making the rejection under Section 102(e), the Examiner states that *Stone '603*, discloses in col. 4, Table 1 and in lines 60 to 67, the step of dividing a space in which the

outlines are defined into a plurality of regions formed by segments of a virtual grid encompassing the space. Further, in the Examiner's response to arguments filed by Applicant in the Amendment After Final Rejection dated January 6, 2003, the Examiner states that *Stone* discloses at col. 44, lines 17-38, a grid feature used to manipulate objects in a boundary and may remain fixed in position relative to the image when the viewing operation is moved the grid may be made to appear fixed but only displayed in the viewing operation region. Again, Applicant assumes that the reference to *Stone* here is to col. 44 of U.S. Patent No. 5,596,690 (hereinafter *Stone '690*). The Examiner further states that it would have been inherent that the grid provides a virtual representation to other objects in the image not contained in the viewing operation region with the displayed grid.

In Applicant's understanding, Table 1 of *Stone '603* lists viewing operations with respective abbreviations for ease of explanation. Further, col. 4, lines 60 to 67, of *Stone '603* states that a first viewing operation region (1 VOR) in a first viewing position in the display area of the display device, is provided, where the first viewing operation region <u>is positioned coextensively</u> with the present image position of a first image segment of a first image.

Applicant submits that, in general and particularly at col. 4, Table 1, lines 60 to 67, and at col. 44, lines 17-38, *Stone '603* does <u>not</u> disclose or even suggest the particular claimed feature of claim 1, that at least one horizontal or vertical segment of the region outlines is selected from corresponding horizontal and vertical segments of a virtual grid encompassing the space, depending on the predetermined outlines.

As described at page 16, lines 5-22, of the present specification, the efficiency of region operations is improved by choosing horizontal and vertical segments to represent

region boundaries where as many as is practical of the horizontal and vertical segments of substantially all region boundaries are in phase. In other words, the segments are to be chosen from the horizontal and vertical lines of the same grid. The grid need not be regularly spaced, nor have the same spacing horizontally and vertically, although typically it will. Such a grid (900) is shown in Figure 22 of the present application.

In contrast, *Stone '690* at col. 44, lines 20 to 23, describes a "grid" feature which the user may control independently to cause a regularly spaced pattern of dots to appear in subwindow (211) to aid the user in spacing and positioning graphical objects in an image. Therefore, the grid feature of *Stone '690* is used to space and position graphical objects in the image. However, there is no suggestion in *Stone '690* that any portion of the graphical object outlines of *Stone '690* are selected from corresponding horizontal and vertical segments of the grid formed by the regularly spaced pattern of dots.

The Examiner further states, in making the rejection under Section 102(e), that *Stone '603*, discloses an image having a plurality of viewing operation regions, manipulating the regions to determine a plurality of further regions . . . region has a corresponding compositing expression, in col. 4, Table 1.

However, Applicant submits that *Stone '603*, does not teach or suggest manipulating the regions to determine a plurality of further regions, at least one horizontal or vertical segment of one or more of the further regions being selected from corresponding horizontal or vertical segments of the virtual grid, wherein each further region has a corresponding compositing expression, as recited in claim 1. As discussed above, the method of claim 1 improves the efficiency of region operations by choosing horizontal and vertical

segments to represent region boundaries where as many as is practical of the horizontal and vertical segments of substantially all region boundaries are in phase (see page 16, lines 5-22, of the specification).

The Examiner further states, in making the rejection under Section 102(e), that *Stone '603* discloses in column 5, lines 38-49, a method whereby each compositing expression corresponding to a further region is modified according to a classification of the further region.

As claimed in claim 1, the method of the present invention classifies the further regions according to at least one attribute of any one or more of the graphical objects which substantially fall within the further regions. For example, as stated at page 6, lines 10 and 11, of the specification, Figure 4 shows the image of Figure 3, together with the corresponding compositing operations after each of the compositing operations has been optimized. As described at page 10, lines 8 to 13, of the specification, the compositing expressions provided in Figure 3 make no attempt to exploit the attributes (i.e., opacity properties) of the objects forming the image of Figure 3. If these opacity properties are used to simplify the compositing expressions for each region, the expressions of Figure 4 are obtained resulting in a simplification (i.e., optimization) of the rendering of regions 2, 3, 5, 6, 7, 8 and 9 compared with Figure 3. These simplified (or optimized) compositing expressions result in far fewer pixel compositing operations being performed to produce the final picture.

As previously submitted, *Stone '603* states in col. 5, lines 34 to 38, that image definition data defining a composite second image produced for display in a composite viewing operation region is produced according to a composite viewing operation, <u>using size and shape dimensions</u> of the "<u>composite viewing operation region</u>". The composite viewing operation

region is defined by a coextensively positioned portion of a first viewing operation region and the second viewing operation region, in the display area. Accordingly, Applicant submits that the description in *Stone '603* at col. 5, lines 34 to 38, and *Stone '603* in general, fails to teach or suggest classifying the further regions according to at least one attribute (i.e., opacity properties) of any one or more of <u>the graphical objects</u> which substantially fall within the further regions.

Further, in Applicant's understanding *Stone '603*, describes in col. 5, lines 38 to 49, that the composite second image produced for display in the composite viewing operation region has substantially the same size and shape dimensions of the composite viewing operation region. Col. 5, lines 38 to 49, states that the composite second image is then displayed in the composite viewing operation region at the same time that the original image is being displayed in the display area. Accordingly, Applicant submits that col. 5, lines 38 to 49, of *Stone '603*, and *Stone '603* in general, fails to teach or suggest the particular claimed feature of claim 1, of "modifying each corresponding compositing expression according to a classification of each further region", where as discussed above and as particularly claimed, the classification of each of the further regions is dependent on at least one attribute (i.e., opacity properties) of any one or more of <u>the graphical objects</u> which substantially fall within the further regions.

In the Examiner's response to arguments by Applicant in the Amendment After Final Rejection dated filed January 6, 2003, the Examiner argues that *Stone* (Applicant assumes the reference to *Stone* here refers to *Stone '690)* discloses, at col. 46, lines 1-18, creating a second model of the original model and the second model having various implementations associated with the second model, and further argues that *Stone* at col. 46, lines 1-18, object data items in the original model not modified by the viewing operation or creating a list of only modified or

unmodified object data items or which implementation is most efficient. The Examiner contends that at col. 46, lines 1-18, discloses that the region outlines are substantially formed by segments of a virtual grid encompassing the space and modifying each expression according to a classification of each further region without modifying the image. Applicant believes that this is a misapprehension of these portions of *Stone '690.*

In Applicant's understanding, *Stone '690* states at col. 45, line 67, to col. 46, line 4, that a second model data structure is created from the original image's model. At col. 2, *Stone '690*, provides a number of examples of information model data structures, and at col. 2, lines 51 to 59, states that images produced from model data structures have at least one similarity of importance to the discussion of the invention of *Stone '690*; each image provides a view of the model data structure to the machine operator or user. The content of the view is established by the functions defined in the processor-controlled operation, typically called the "application", which produces the image from the model data structure. In effect, the image produced by the application provides visual access to the data and information in the model data structure. Accordingly, Applicant submits that *Stone '690* discloses at col. 46, lines 1-18, actually states that a copy of such an information model data structure (or a portion thereof) is made.

Stone '690 further explains, col. 46, lines 4 to 13, that various <u>implementation efficiencies</u> associated with the requirements of the viewing operation may be used to create the second model, including techniques such as using reference pointers to object data items in the original model that are not modified by the viewing operation, or creating a list of only modified or unmodified object data items from the original model, or creating an entire copy of the model when that implementation is the most efficient for the viewing operation. Accordingly, in

Applicant's understanding of *Stone '690,* the second model includes object data items that are modified or not modified by creating the copy of the original model.

However, Applicant submits that *Stone '690*, at col. 46, lines 1-18 and *Stone '690* in general does not teach or suggest the feature of at least one horizontal or vertical segment of one or more of the object data item outlines being selected from corresponding horizontal or vertical segments of a virtual grid encompassing the space in which the object data outlines are defined. In contrast, as discussed above, the only disclosure in *Stone '690* regarding the grid feature is that the grid feature of *Stone '690* is used to <u>space and position</u> graphical objects in the image. Further, Applicant submits that *Stone '690*, at col. 46, lines 1-18, and *Stone '690* in general does not teach or suggest the feature of modifying each corresponding compositing expression according to a classification of each further region to form an optimized compositing expression, where the further regions are classified according to at least one attribute of any one or more of the <u>graphical objects</u> which substantially fall within the further regions. In contrast, as discussed above, *Stone '690* discloses a composite viewing operation region being produced according to a composite viewing operation, <u>using size and shape dimensions</u> of the composite viewing operation region.

Still further, Applicant submits that *Stone '690*, at col. 46, lines 1-18 and *Stone '690* in general does not teach or suggest the feature of the corresponding compositing expressions being optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, while maintaining the image to be generated. In contrast, *Stone '690*, at col. 46, lines 1-18, merely discloses using reference pointers to object data items in the original model that are not modified

by the viewing operation, or creating a list of only modified or unmodified object data items from the original model.

The Examiner argues that it is inherent that the image segments and viewing operations are user-interactive, and the image created or preferred to be illustrated may be an image formed by the grid disclosed in *Stone* without having the viewing operation region fixed for display. However, Applicant submits that an image formed by the grid of *Stone '690* does not teach or suggest the particular claimed feature at least one horizontal or vertical segment of one or more of the further regions being selected from corresponding horizontal or vertical segments of the virtual grid.

Finally, Applicant submits that, in general and in particular at col. 5, lines 38 to 49 and col. 46, lines 1 to 18, *Stone* does not disclose or suggest, the particular claimed feature of the present invention of the corresponding compositing expressions being optimized by eliminating one or more objects within the further regions from one or more of the corresponding expressions, depending on the classifications, while maintaining the image to be generated. As discussed above, opacity properties can be used to simplify the compositing expressions for each region, the expressions of Fig. 4 being obtained resulting in a simplification (i.e. optimization) of the rendering of regions 2, 3. 5, 6, 7, 8 and 9 compared with Fig. 3. These simplified (or optimized) compositing expressions result in far fewer pixel compositing operations being performed to produce the final picture. Accordingly, the rendered image of Fig. 3 remains the same, but far fewer pixel compositing operations are performed to produce the image.

In contrast, *Stone '690* at col. 46, lines 1-18 merely discloses using reference pointers to object data items in the original model that are not modified by the viewing operation,

or creating a list of only modified or unmodified object data items from the original model. That is, object data items of *Stone '690* are not eliminated from one or more of the compositing expressions while maintaining the image to be generated. In the event that *Stone '690* does add, delete or replace objects from the model (e.g., at col. 45, lines 33 to 42 of *Stone '690*) the displayed or generated image is modified through adding, deleting and replacing objects.

Nothing has been found in *Stone '603* (nor *Stone '690*) that would teach or suggest the dividing, manipulating, classifying, and modifying features of claim 1.

For at least the above reasons, Applicant submits that independent claim 1 is clearly allowable over the prior art.

Independent Claims 25 and 49 are apparatus and computer program product claims, respectively, corresponding to method Claim 1, and are believed to be patentable for at least the same reasons as discussed above in connection with Claim 1. Additionally, independent Claims 14, 38, and 62 include similar features as discussed above in connection with Claim 1. Accordingly, Claims 14, 38, and 62 are believed to be patentable for reasons similar as those discussed above in connection with Claim 1.

A review of the other art of record has failed to reveal anything which, in Applicant's opinion, would remedy the deficiencies of the art discussed above, as references against the independent claims herein. These claims are therefore believed patentable over the art of record.

The other claims in this application are each dependent from one or another of the independent claims discussed above and are therefore believed patentable for the same reasons. Since each dependent claim is also deemed to define an additional aspect of the

invention, however, the individual reconsideration of the patentability of each on its own merits is respectfully requested.

In view of the foregoing amendments and remarks, Applicant respectfully requests favorable reconsideration and early passage to issue of the present application.

Applicant's undersigned attorney may be reached in our New York office by telephone at (212) 218-2100. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

Attorney for Applicant

Registration No. 29,296

FITZPATRICK, CELLA, HARPER & SCINTO
30 Rockefeller Plaza
New York, New York 10112-3801
Facsimile: (212) 218-2200
NY MAIN 3 61152